IB Chemistry Brakke ECA – Internal Assessment

**Name**:_____ **Lab:**_____ **Date:**_____

Updated 10.03.11

| | IB CRITERION ASPECTS | | | |
|---|---|---|---|---|
| **Design** | **1. Defining the Problem and Selecting Variables** | **2. Controlling Variables** | **3. Developing a Method for Collecting Data** | ***ECA std 9:*** |
| ***IB Total =*** | C P N n/a • Independent Variable | C P N n/a • **Table 1** Control Variables (include all below) | C P N n/a • Procedure is detailed, easy to repeat | ***7*** |
| ***6*** | C P N n/a • Dependent Variable | C P N n/a • Justify the need to control / effect on results | C P N n/a • Cite (MLA) sources if used for procedure | ***6 6.5*** |
| ***5*** | C P N n/a • Research Question (using variables) | C P N n/a • Specifically describe how each is controlled | C P N n/a • Materials list is complete | ***5 5.5*** |
| ***4*** | C P N n/a • Literature Values (or statement of none) | C P N n/a • Measurement of the control | C P N n/a • Units, precision, size, formula of materials | ***4 4.5*** |
| ***3*** | C P N n/a • Cite (MLA) sources for Lit Values | • What instrumentation is needed | C P N n/a • Sufficient range of independent variable | ***3 3.5*** |
| ***2*** | C P N n/a • Hypothesis based on Literature Values | • Frequency of measurements | C P N n/a • Appropriate # of trials selected | ***2 2.5*** |
| ***1*** | C P N n/a • Brief explanation of the experiment | C P N n/a • Explain which variables that can't be controlled | C P N n/a • Picture (or drawing) of apparatus | ***1 1.5*** |
| ***0*** | | C P N n/a • State if Quantitative vs Qualitative Control | C P N n/a • Collection of Data (explanation or table) | **0 0.5** |
| | | • Is measurement or observation needed | | |
| | ***C = 2 P = 1 N = 0*** | ***C = 2 P = 1 N = 0*** | ***C = 2 P = 1 N = 0*** | **x1 x2 x3 x4** |
| **DCP** | **1. Recording Raw Data** | **2. Processing Raw Data** | **3. Presenting Processed Data** | |
| ***IB Total =*** | C P N n/a • **Table 2** containing given/relevant values/formulas | C P N n/a • **Table 5** containing processed data | **Results Table 8:** | ***ECA std 10:*** |
| ***6*** | C P N n/a • **Table 3** containing raw quantitative data | C P N n/a • Averages are taken of PROCESSED data | C P N n/a • Table contains title, headings, explanations | ***7*** |
| ***5*** | C P N n/a • **Table 4** containing qualitative observations | C P N n/a • **Table 6** containing final results, compare to lit. | C P N n/a • Units are present and correct | ***6 6.5*** |
| ***4*** | C or Zero • All data is collected individually (non negotiable) | C P N n/a • **Table 7** containing calculations (eqn, ex, expl) | C P N n/a • Significant figures are correct | ***5 5.5*** |
| ***3*** | C P N n/a • Tables contain title, headings, explanations | C P N n/a • Units, Sig Figs, *Uncertainty (present & correct)* | C P N n/a • Every value contains uncertainty (% or ±) | ***4 4.5*** |
| ***2*** | C P N n/a • Units are present and correct throughout | C P N n/a • Calculations are correct | C P N n/a • Tables are organized and easy to follow | ***3 3.5*** |
| ***1*** | C P N n/a • Significant figures are correct within 1 value | | | ***2 2.5*** |
| ***0*** | C P N n/a • Every value contains uncertainty (% & ±) | **For Graphs**: (graph independent/dependent variables) | | ***1 1.5*** |
| | C P N n/a • Tables are organized and easy to follow | C P N n/a • Graph created is original, with raw data (Excel) | | **0 0.5** |
| | | C P N n/a • Correct choice of graph type (scatter, line, bar) | | |
| | | C P N n/a • Correct data was used to make graph | | **x1 x2 x3 x4** |
| | | C P N n/a • Title, axis, key, units, correct | | |
| | | C P N n/a • If linear trend line (with equation) and $R^2$ included | | |
| | | C P N n/a • Presentation of Graph: legible, neat, etc | | |
| | | C P N n/a • Explanation of graph and results of graph | | |
| | ***C = 2 P = 1 N = 0*** | ***C = 2 P = 1 N = 0*** | ***C = 2 P = 1 N = 0*** | |
| **Conc. & Eval.** | **1. Concluding** | **2. Evaluating Procedure(s)** | **3. Improving the Investigation** | |
| ***IB Total =*** | C P N n/a • Results are repeated at beginning | C P N n/a • Explain difference between expected/observed | C P N n/a • **Table 9c** – Improvement to minimize errors | ***ECA std 11:*** |
| ***6*** | • Major Results | C P N n/a • Comment on the reliability of procedure | C P N n/a • New Equipment (name, precision, location) | ***7*** |
| ***5*** | • % Error | C P N n/a • Can the results be trusted (outliers) – what would happen if the outliers were thrown out? | C P N n/a • Manipulation of procedures (and why) | ***6 6.5*** |
| ***4*** | • Uncertainty | C P N n/a • **Table 9a** – list errors/problems/limitations | C P N n/a • Suggestions to improve systematic errors if possible | ***5 5.5*** |
| ***3*** | • Units | • Random or Systematic Error | C P N n/a • Suggestions (specific) to improve random errors | ***4 4.5*** |
| ***2*** | • Refer back to graph (repetitive, yes) | • Discuss Accuracy vs Precision | | ***3 3.5*** |
| ***1*** | C P N n/a • Restate and respond to the research question | C P N n/a • **Table 9b** – state impact of each error on results | NOT FOR IB CRITERIA – but required for me ☺ | ***2 2.5*** |
| ***0*** | C P N n/a • Literature values are referenced (cited using MLA) | | C P N n/a • Provide at least one relevant extension for the lab. This can be simply studying a different variable, testing the effect of an error source, real world examples, vocational (job) applications, possible extended essay topics, etc. | ***1 1.5*** |
| | C P N n/a • Describe the **chemistry** behind the experiment | | | **0 0.5** |
| | • Relevant IB Curriculum Material | | | |
| | • **JUSTIFICATION** of results or lack of | | | **x1 x2 x3 x4** |
| | C P N n/a • Conclusion is based on your results (specifically) | | | |
| | C P N n/a • Uncertainty compared to percent error | | | |
| | ***C = 2 P = 1 N = 0*** | ***C = 2 P = 1 N = 0*** | ***C = 2 P = 1 N = 0*** | |